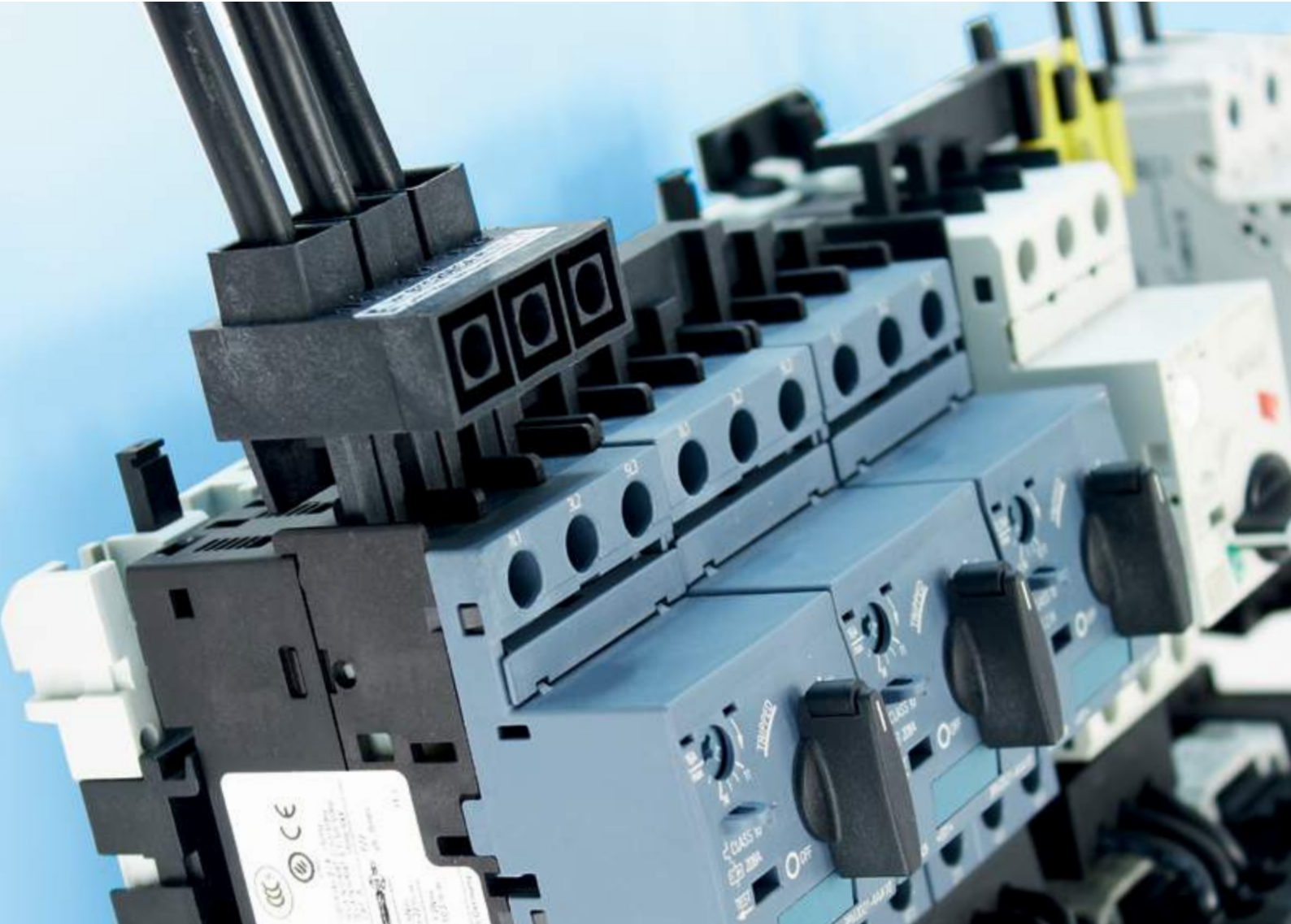



CONNECTING
VISIONS



Mechanical engineering partner

Reliable technology that improves productivity





The main thing is that everything works well! In mechanical and electrical engineering everything has to work smoothly, be of the best quality and meet the highest safety standards whilst simultaneously being cost optimised. It's the foundation ensuring we can supply products customised to your needs.

FTG has for many years developed power distribution systems of the very highest quality to meet mechanical engineering needs.

Reducing assembly times, preventing connection errors and comprehensive maintenance and service friendliness are the principles we adhere to in designing our products. We're forever developing new and innovative systems and solutions to meet our clients' specific needs.

Customised solutions

Apart from manufacturing about 10.000 products and marketing them all over the world developing power distribution systems that precisely meet specific client needs is our daily bread.

Know how from experts

from advising to the individual product



Our clients can always rely on our know how - from advising all the way to the finished tailored product, including development of new machinery and plant. Extant products can be optimally exploited and modified as required thanks to their being integrated in the process as early as possible.

There are often no standard solutions where individual combinations of automated machinery and switchgear in complex plants are concerned. In such cases we modify existing products to meet the needs in question. If necessary we develop completely new products together with the client and test them in our own laboratory facilities. We handle demanding certification and approval procedures together with the institutions involved.

Some FTG products are certificated to UL (= Underwriters Laboratories) standards, for example. We offer tailored complete electricity distribution packages for frequently repetitive assembly situations.

Our power distribution systems ensure that distribution is more efficient as well as being as safe and reliable to use as possible.

In other words our products save valuable space in switch cupboards, make service and maintenance work easier and help reduce expensive switch and control cupboard assembly time.

They also minimise the risk of connection errors.

Economy thus merges with safety.



picture 1: integrated endcover | picture 2: protection covers for unused lugs | picture 3: application with connection terminal | picture 4: Interconnection of several eurovario busbars

picture 1: busbar 10 mm² | picture 2: application with bottom feeding | picture 3: contact protection | picture 4: application with top feeding

The Eurovario-System is very compact and saves a huge amount of time when it comes to assembly. In contrast to existing busbars, there is no time-consuming sawing, burring, cleaning or mounting of endcaps.

In addition, the Eurovario-System is streamlined, and yet the quality and current carrying capacity are as good as any standard busbars. Because of their design, the busbars can be easily extended by overlapping if a distribution has to be expanded. This technique can also be used to double the cross-section to up to 50 mm² without any problems.

FTG has added a new generation incorporating a welded feeding terminal to the Eurovario-System what creates an optimal connection between the feeding terminal and busbar.

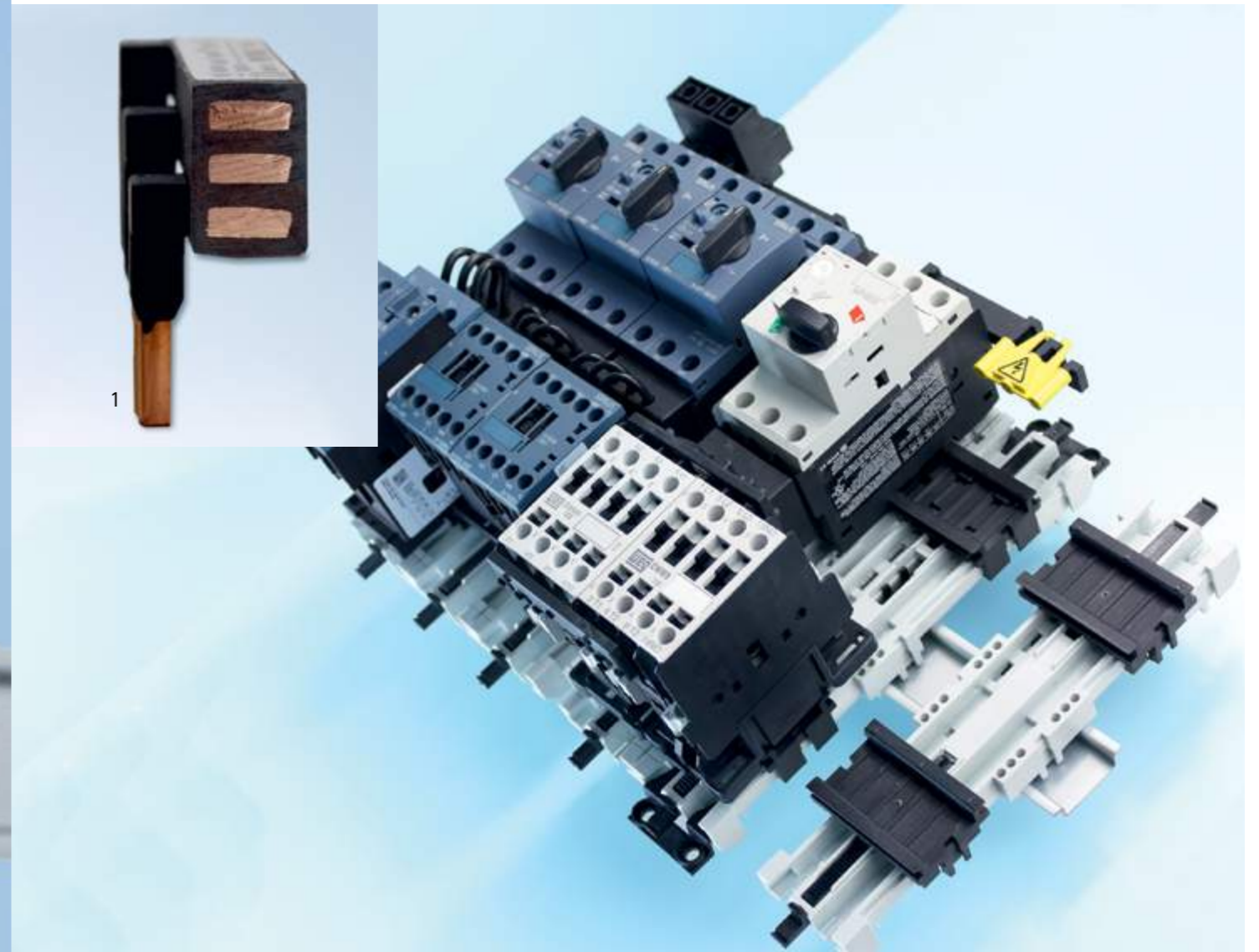
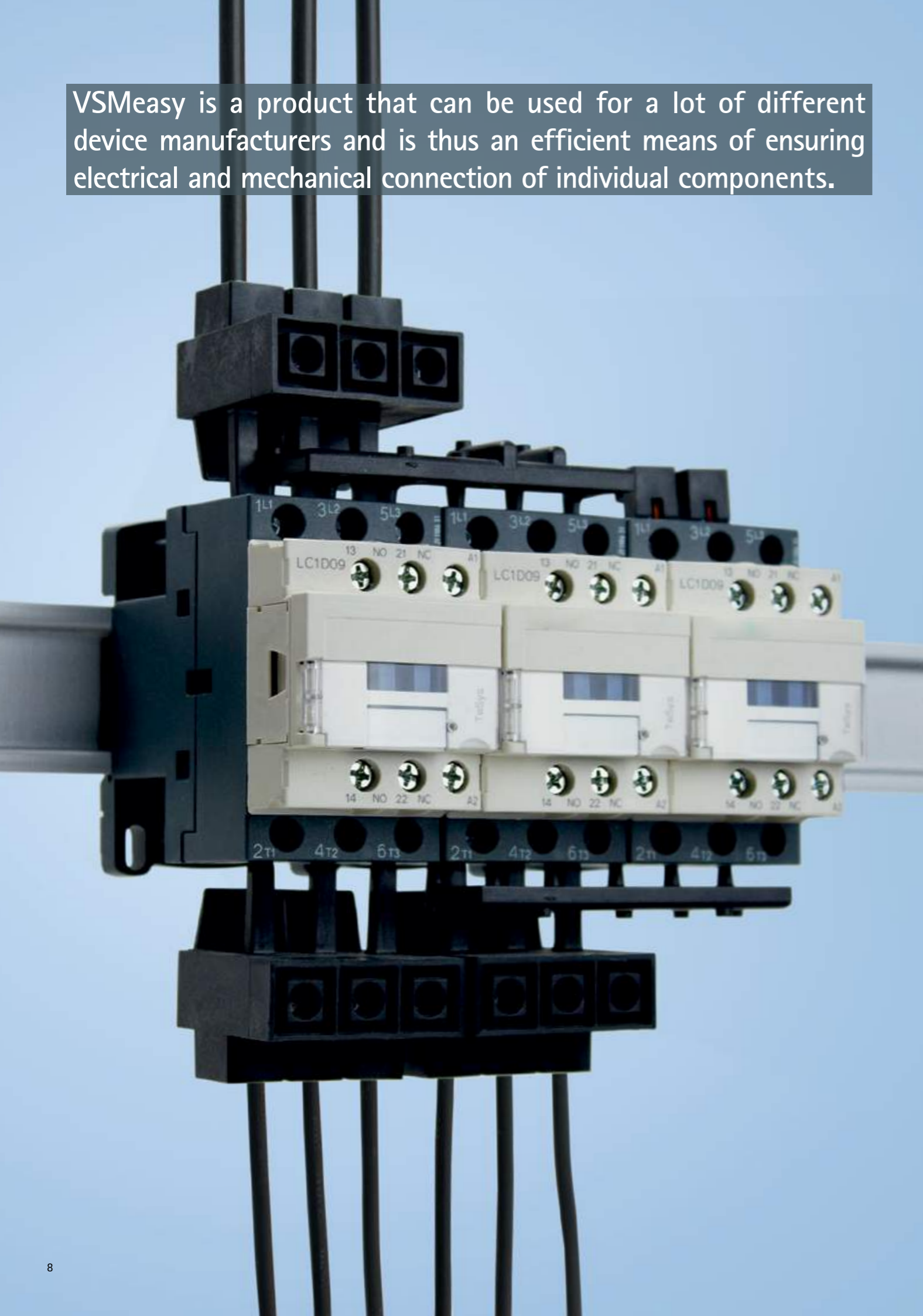
- simple and quick installation
- 10, 16 and 25 mm²
- integrated endcovers
- compact design
- over 70% time saving
- type: pin or fork
- no sawing
- enormous number of variations
- high current requirements
- busbars up to 100A / 690V
- terminals up to 125A / 690V

Motor Protection Switches made by various manufacturers are used in all systems in combination with electric motors. A high start-up current, a longer braking distance, motor faults etc. can cause overloads. Motor protection switches which are simply wired with appropriate motor protection switch busbars from FTG provide reliable protection against this.

Because of their extremely space-saving design, the busbars can be used in switch cabinet construction and have the advantage of being compact, stable and safe to touch.

- 3-pole protective motor switch bars
- compact design
- high current carrying capacity, 125 A for side feed, 160 A for centre feed
- 10 - 35 mm² as well as on customer request
- tailored for 2, 3, 4 or 5 devices
- no cutting to size needed
- integrated end caps

VSMeasy is a product that can be used for a lot of different device manufacturers and is thus an efficient means of ensuring electrical and mechanical connection of individual components.



VSMeasy impresses by the very compact rail design which, in addition, is very space-saving in terms of applications. A particular characteristic of these rails is the fully encapsulated design (1).

Due to the rotated assembly of the rails they can be extended as desired - entirely according to the requirements of space available in the cabinet and used for the relevant application. By using VSMeasy you will achieve a short-circuit proof and short-circuit protected connection ensuring a touch-proof construction. The amount of work during assembly shows a clear economy of time paying off quickly.

These busbars are designed for motor protection circuit breakers up to 120A. Suitable supply terminals acc. to IEC 60947 and UL 508E are available as accessories for the relevant versions

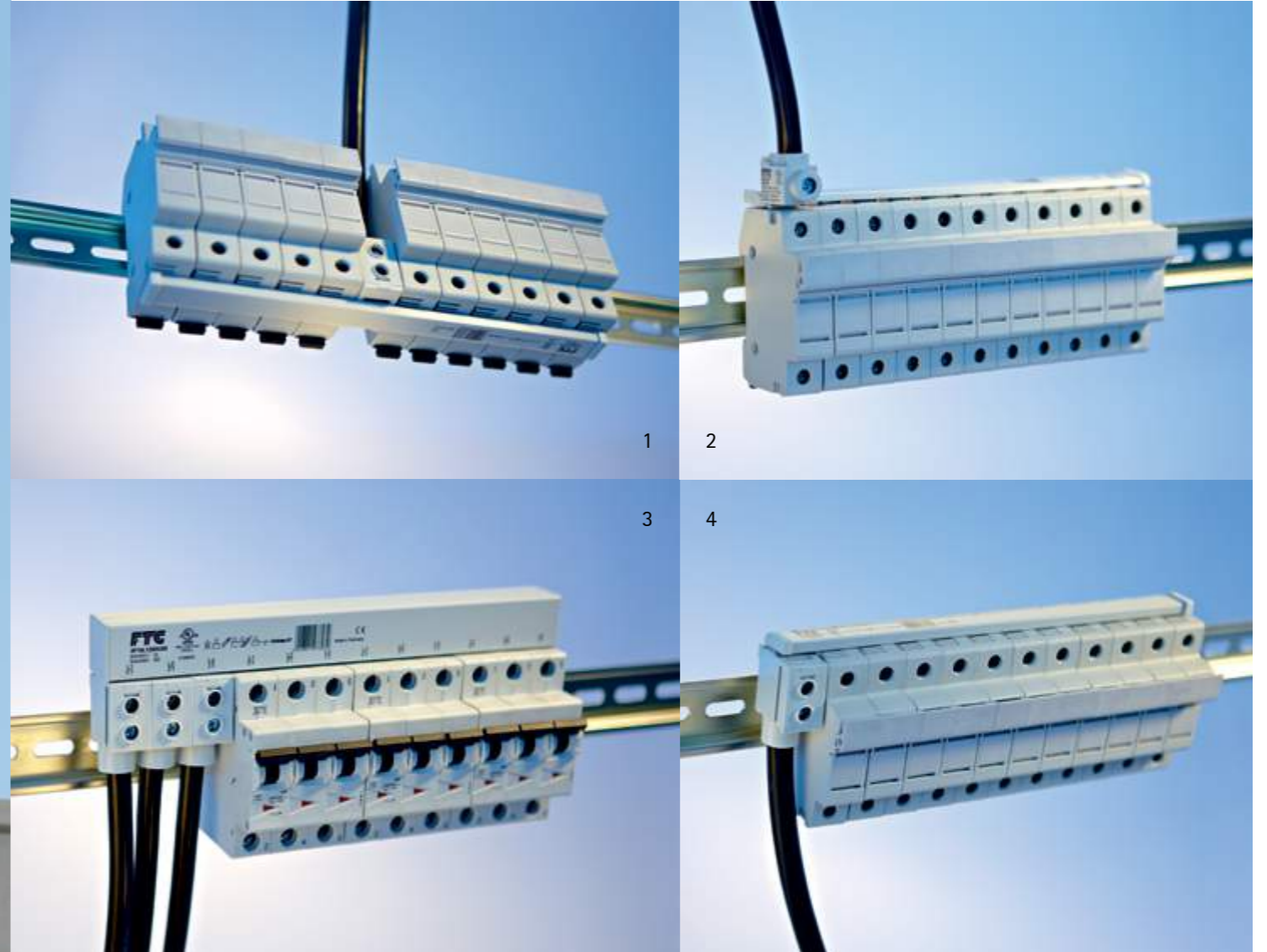
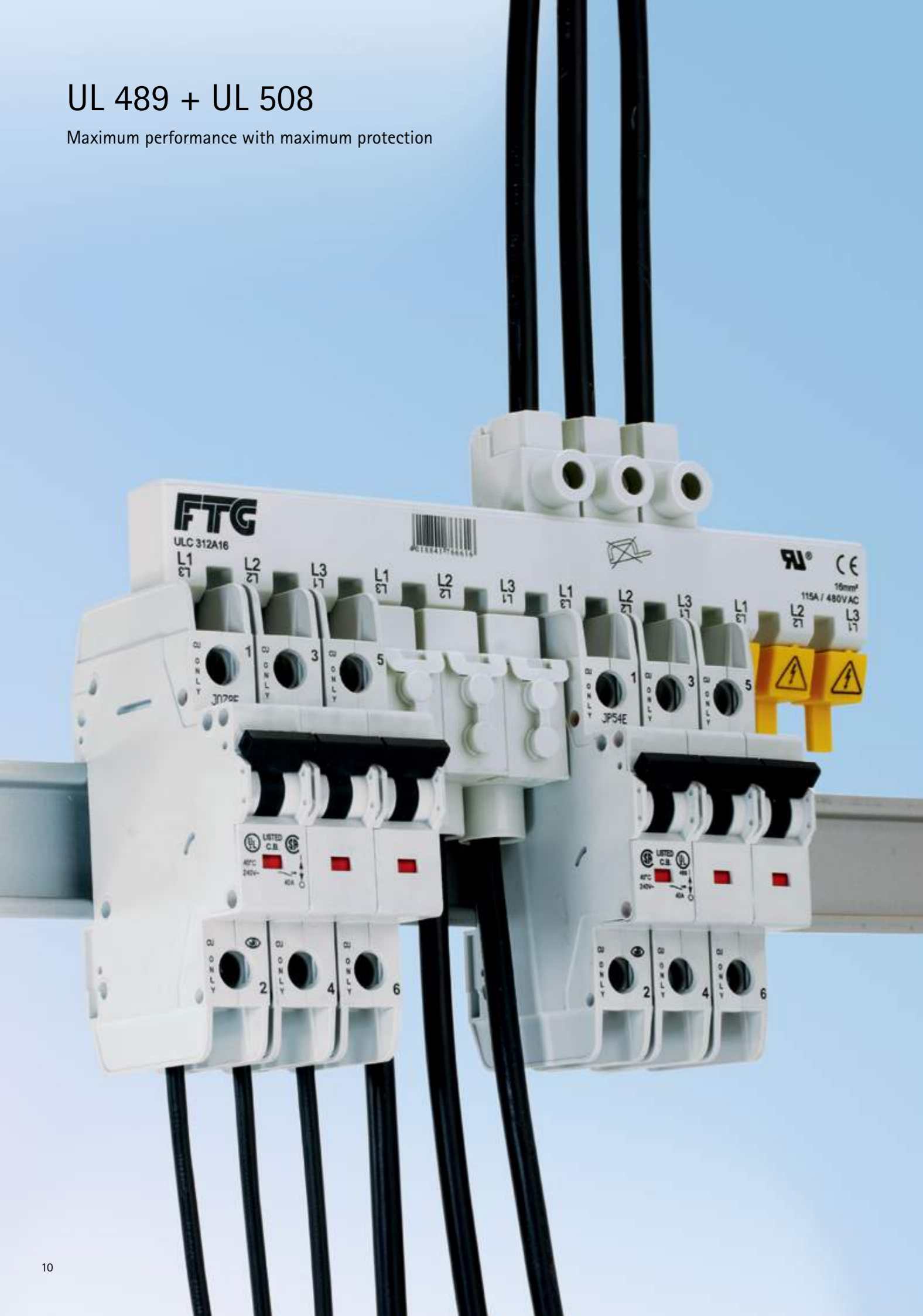
of motor protection circuit breakers. The VSMeasy range also includes star-delta, reverse and special wiring bridges.

In order to be even more flexible adapter systems are used to build direct-, reverse or star-delta combinations. That way, pre-wiring can be realized outside the cabinet enabling you to exchange the complete combination in case of failure. This is made possible due to the slidable top-hat rails.

With a space-saving of approx. 15% and a time-saving of up to 50% compared with the conventional top-hat rail assembly, using these adapters will pay off quickly.

UL 489 + UL 508

Maximum performance with maximum protection



picture 1: centre feed from top | picture 2: direct feed with connection from top | picture 3: direct feed onto busbar (3-phase) | picture 4: direct feed 1-pole side-fed with ESB.

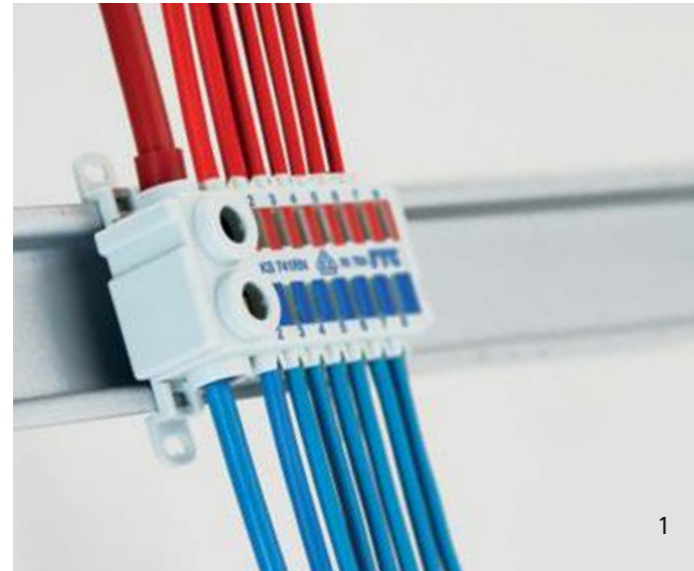
Flexibility for UL. Various applications can be covered there are no limitations because of the mounting situation. Whether or not it concerns feeding from top, from bottom, centrally or laterally - the FTG busbar-system suits all requirements. There is a comprehensive number of accessories available for the busbar-system „made in Germany“, such as terminals or contact protective caps.

With safety in global use. In worldwide use of switchboards, a norm conformal power connection is necessary. For this requirement, FTG offers numerous products, which are UL-certificated.

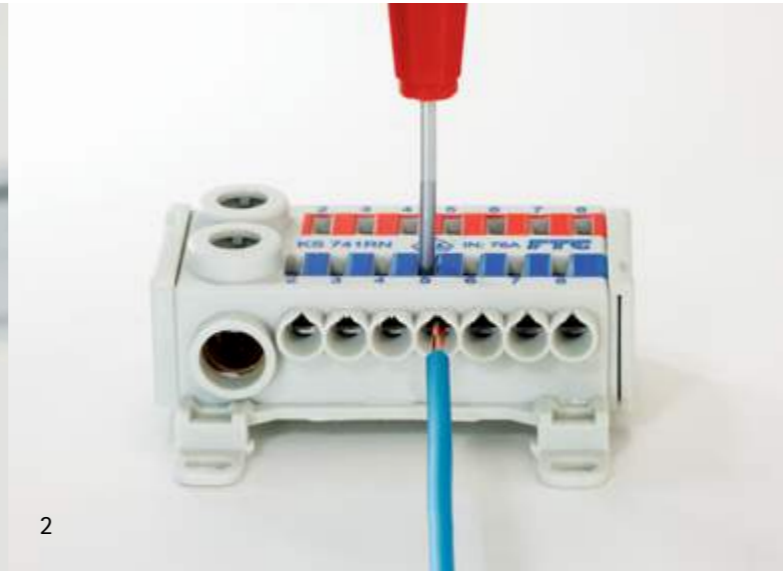
- for power circuit breakers according to UL 508 /1077 as well as auxiliary switches
- also in connection with fuse holders according to UL 512
- types with 1,2 and 3 phases
- designed for 80/100 A
- at center feeding 160/200 A
- can be sawn
- finger safe by end caps
- Comprehensive accessories, like terminals and protective caps
- as such also suitable for DC applications

Easy Connection Box

Compact and quick



1



2



3



4

picture 1: Use on a DIN rail | picture 2: Undoing a connection using Push In technology | picture 3: ECB terminal with screw fastening | picture 4: Can be installed in rows

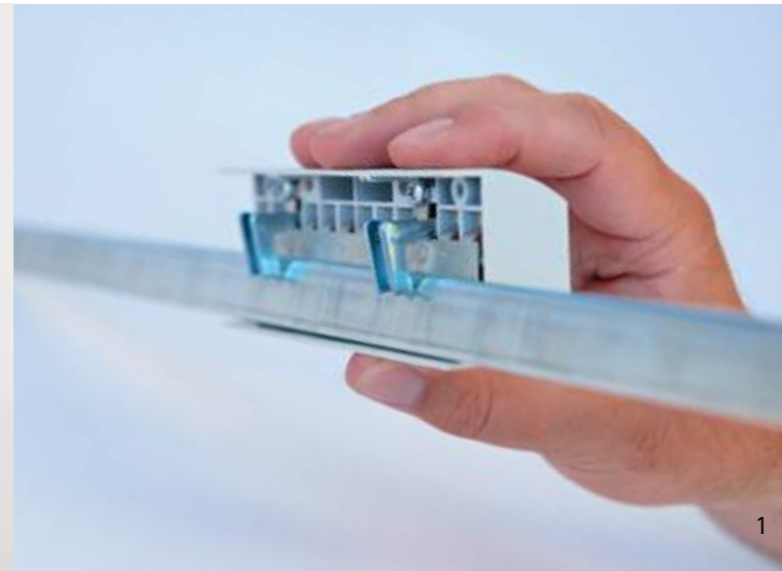
The Easy Connection Box is of compact design and can be installed in virtually any conceivable power distribution equipment as it needs very little space. The product's uses range from neutral and protective conductors to quick dissemination of control voltages. Colour coding ensures correct wiring of cross-sections ranging from 0.5 to 4 mm².

Whilst supply employs threaded connections distribution of outputs uses the well proven cotter pin connection technology that saves at least 30% assembly time. Depending on design 1 to 2 electric voltages can be installed in one housing preserving their ratings.

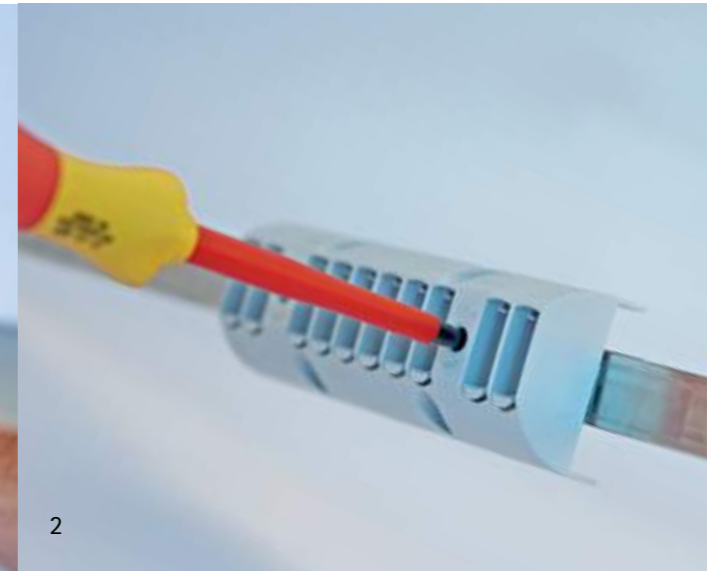
There are many fastening options in assembly, ranging from screwing to a plate to plugging into a DIN rail (1+4), including both vertical and horizontal variants. The Easy Connection Box offers IP 20 protection.

MiniClic

flexible and space saving



1



2



3



4

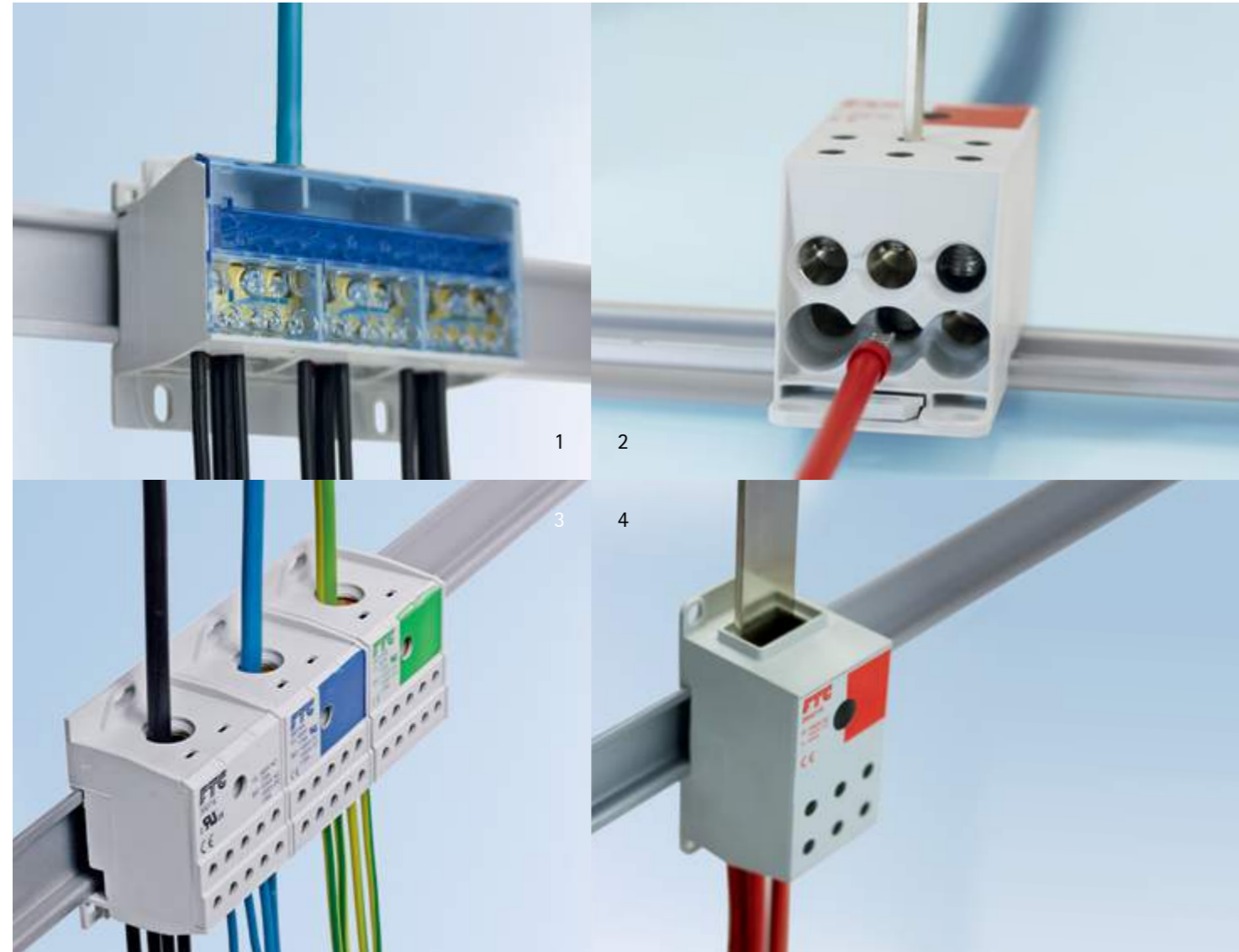
picture 1: fitting on MiniClic-modul | picture 2: locking via maintenance-free screws | picture 3: fitting on cover (included) | picture 4: outgoing cubes (available in 4 colors)

MiniClic reduces mounting times of busbar outputs by up to 50%. The MiniClic module is first pushed onto the busbar (1), and then fixed by two maintenance-free screws (2+3). Then, the cubes for the required outputs will be plugged in (4); the cubes engage into a spring mechanism and can be removed as required. Finally, single-wire and multi-wire cables with cross-sections of 1.5 up to 10 mm², equipped with cable end sleeves or ultra sonic welded cable ends can be pushed easily into the cube opening. The cable ends will thus be firmly locked by the push-in spring. The push-in cubes are available in four colours: grey, blue, green and red. Only the required number of cubes and thus outputs will be used.

Therefore, not used outputs must not be equipped with cubes. MiniClic allows extremely flexible use with various combinations. Thus many applications can be covered. Only those outputs will be equipped with cubes that are actually needed. MiniClic allows direct mounting on busbar systems or on base plate. For example, the version with integrated busbar and bolt can be connected with the main breaker by means of copper lugs. With factory pre-assembled input terminal MiniClic can even be used as a small distribution block. Due to the compact size MiniClic will save both valuable space and mounting time! Simple and brilliant - simply brilliant.

Power Distribution Blocks

Distributed compact and clearly



picture 1: Power Distribution Block 38056 in application | picture 2: outlet at a Power Distribution Block 38503R | picture 3: single modules on a DIN-rail | picture 4: input with flat copper

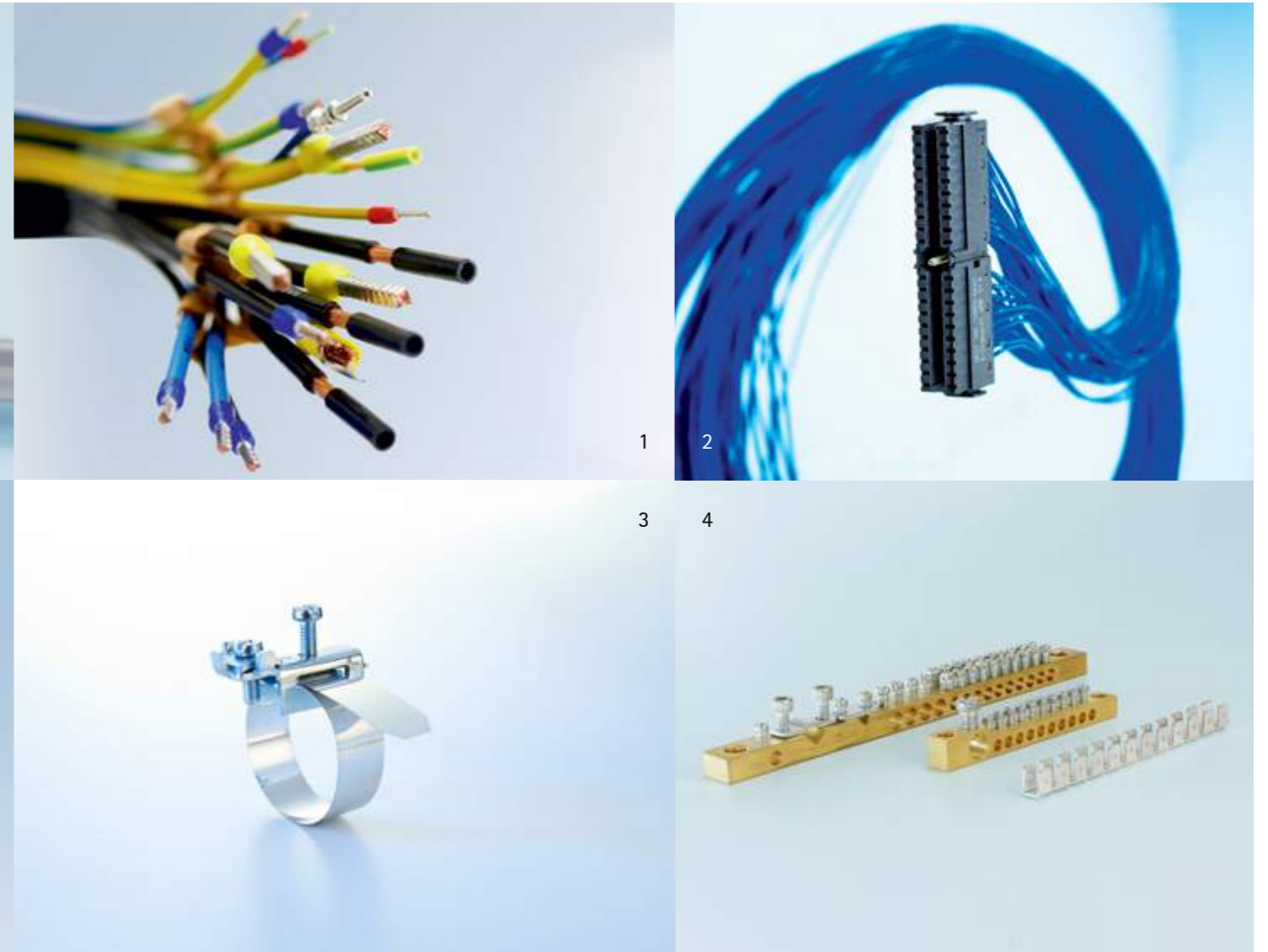
Apart from time, FTG Power Distribution Blocks save space in the control cabinet as well. On account of the small dimensions and the compact engineering, the Power Distribution Blocks fit into any space.

Like many products supplied by FTG, Power Distribution Blocks offer the possibility of reducing fitting times. The individual modules can be snapped on to the DIN rails easily, and can be removed again, whenever required. In addition, it is possible to screw the distributor on to the mounting plate directly. Conductors up to 500 sqmm can be connected. The modules can be loaded with a maximum of 950 A. The output side can be fitted with up to eleven conductors, in parts with different cross-section of up to 240 sqmm!

- feed by sectional round or flat conductors
- numerous output points
- can be push-fit to flat copper in some cases
- time and space saving
- finger safe (IP 20)
- UL listed in some cases
- up to 950 A
- supply conductors up to 500 sqmm
- output conductors up to 240 sqmm
- high short-circuit proofness (up to I_{pk} 50 kA)
- single to four pole modules
- up to five-pole layout possible by combining individual modules

Earthing material and tailored wiring

Potential and safe wiring



picture 1: Cable tree with various types | picture 2: Strands printed with PCS (Programmable Control System) plug designation | picture 3: Earthing clamp | picture 4: Clamp rail 871-1-0002 and earthing rail

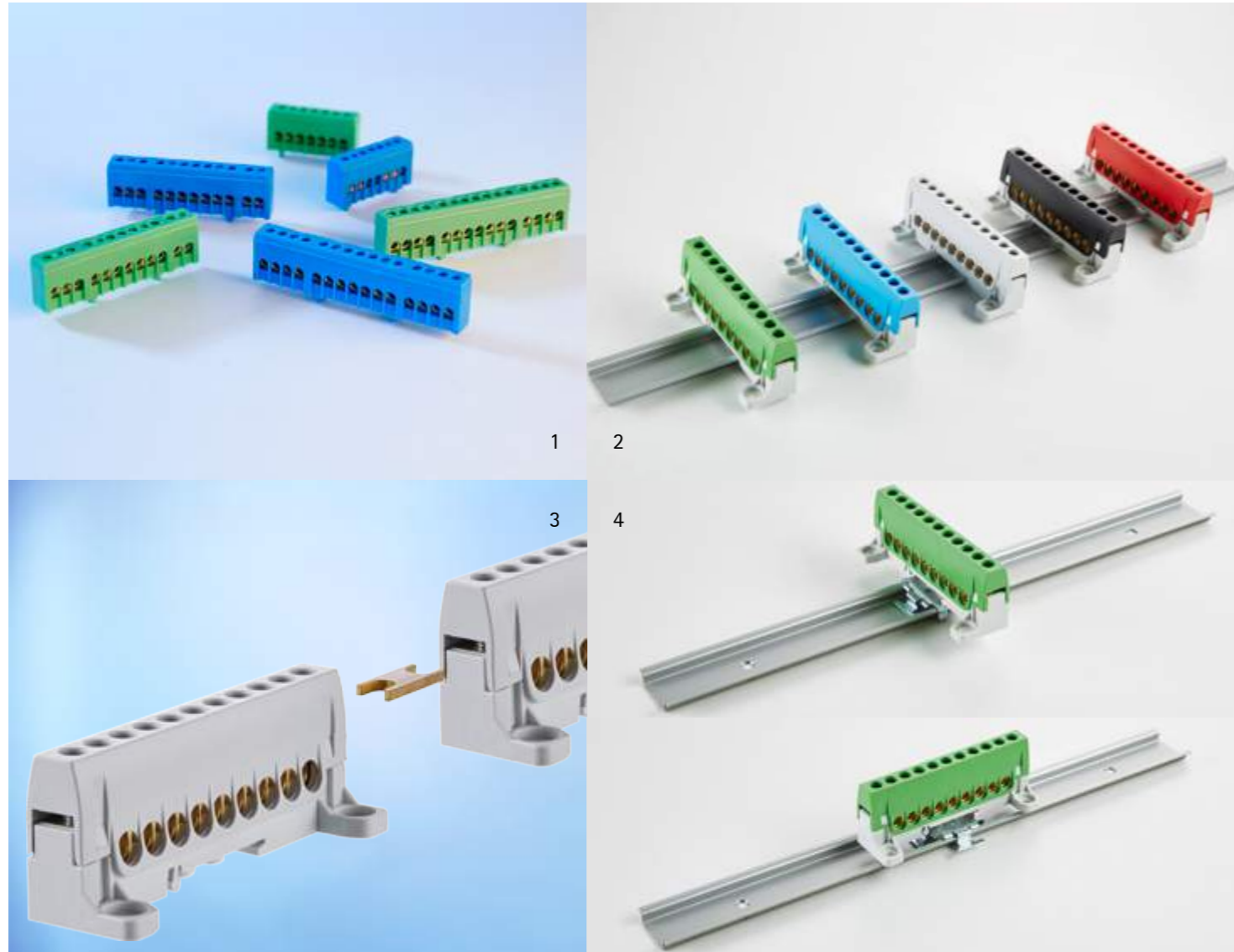
Tailored wiring - it doesn't get any easier. Tailored wiring with individual labelling of each strand. All the tailoring parameters such as the design of the cable ends and the length of the insulation etc. can be individually specified. Wiring takes less time as the beginning and end point can be printed on each strand. Switch cupboard wiring is thus feasible without reading any plan of the relevant circuitry.

FTG offers SPS-plugs with screw contacts as well as spring contacts. Even customised plugs can be assembled. The wire ends can be customized in any way. Partially stripped, assembly of end sleeves, or ultrasonic welding, anything is possible.

Earthing material includes all products associated with equipotential bonding and earthing. To protect against overvoltage and fault/leakage current good earthing is essential in every electricity distribution system. Equipotential bonding strips (4) together with earthing clamps (3) make connecting piping (for gas and water) efficiently and professionally feasible and thus ensure maximum safety. This ensures safety of persons and of plant and machinery at all times.

Neutral conductors and earthing terminals

Strongly positioned and highly flexible



picture 1: The 870X-XXFS series in its available colors | picture 2: 870GFS9-series | picture 3: The 870GFS9xx-series | picture 4: The 870GFS9Mxx-series can be mounted lengthways and crossways on the DIN-Rail

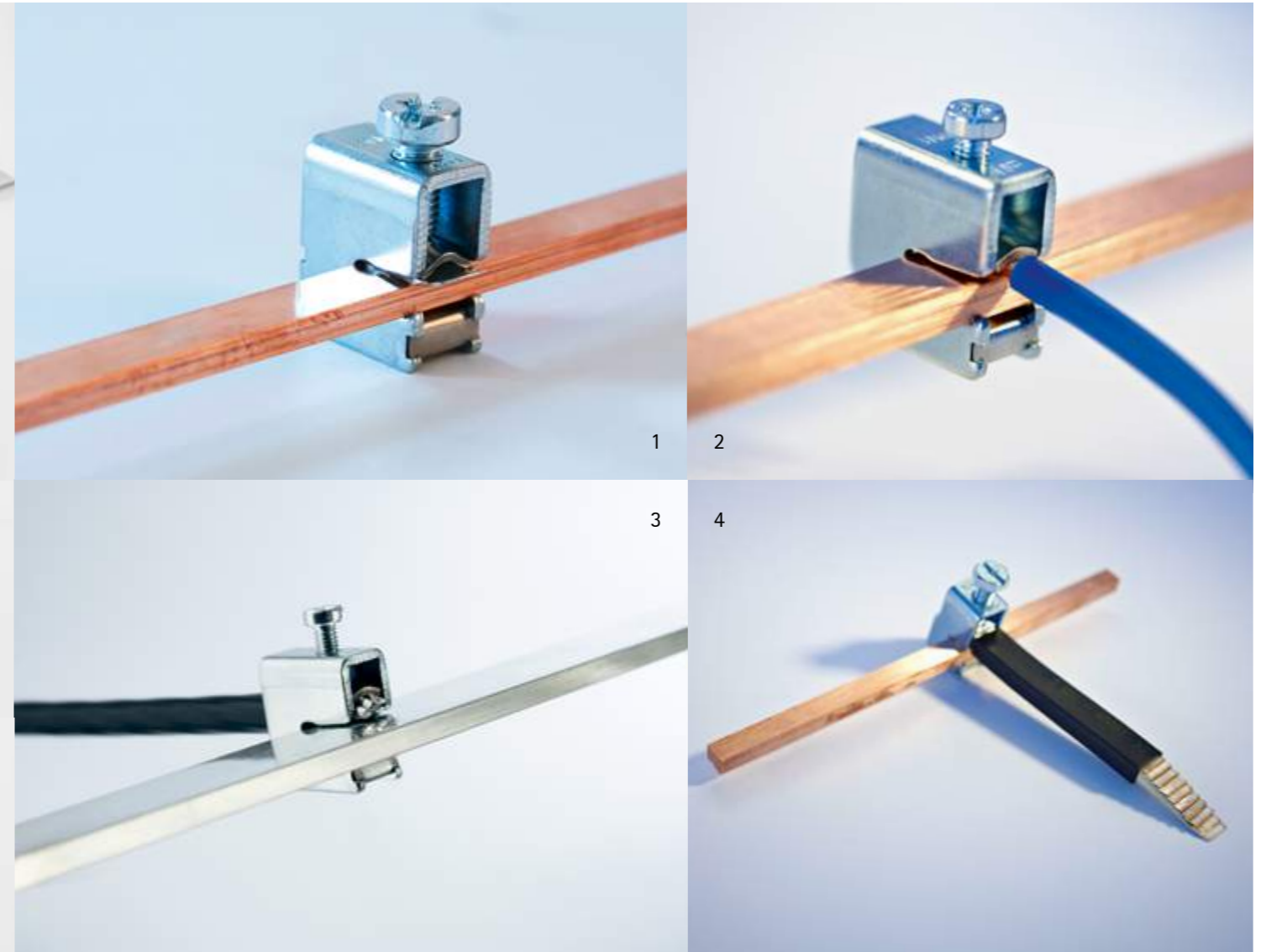
Strongly positioned and highly flexible. FTG offers a strong portfolio of neutral conductors and earthing terminals, especially for finger safe systems.

The terminals are all side finger safe as well as an easy assembly is guaranteed. With the simple assembly, much time can be saved. Depending on design multiple terminals are mountable side by side. An additional possibility is to mount them horizontal or vertical with a steel spring retainer.

- mounting on DIN-rail or on back panel
- finger safe system
- Apertures for conductors of 870x-xxFS are closed on one side
- Max. operating current up to 160A
- Protection class: IP20
- Connecting dimensions: 1,5 up to 25 mm²
- Colour: green, blue, grey black & red

Bow Terminals

Great variety with solide technique



picture 1: Bow Terminal BKNA | picture 2: bow terminal BKN | picture 3: Bow Terminal BKN connected with aluminium conductor | picture 4: The BKN terminal for applications with flexible lamella conductors

As one of the leading manufacturer of power busbar systems FTG offers an extensive range of well established bow terminals.

Our product range also includes the new and innovative bow terminal BKNA, which has been created to optimize the classical versions. It is characterized by its optimized pressure plate which is firmly riveted to the fixing screw increases the pull-off force and prevents twisting of the terminal during installation. The robust bow terminals from FTG are favorable solutions if simple, yet highly reliable solutions are demanded.

Conductors with sizes of 1.5 to 185mm² can be connected with FTG bow terminals. For flat copper of 3, 5 and 10 mm thickness there are terminals available which can be loaded up to 500 A.

BKNA-bow terminals

- applicable for both copper and also aluminum connections
- proof, solid and proven technology
- capacity up to 500A
- cross sections 1.5 - 185 mm²
- for busbars 5 mm / 10 mm (Al / Cu)

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